

Claims

1. Multistatic sensor arrangement for measuring distance from an object, having a transmit unit (Tn) and a receive unit (Rm) unit, each of which has a high-frequency oscillator (HFO-Tn, HFO-Rm) and a pulse generator (PG-Tn, PG-Rm), characterized in that the pulse generators (PG-Tn, PG-Rm) can be supplied with clock signals (TS, TR) from signal generators, it being possible to transmit the clock signals (TS, TR) via a common data bus (B) to the transmit unit (Tn) and the receive unit (Rm), as a result of which a deterministic phase relationship can be generated for the high-frequency signals from the high-frequency oscillators (HFO-Tn, HFO-Rm).
2. Sensor arrangement according to Claim 1, characterized in that the transmit and receive units each have antennae (E^{Rm} , E^{Tn}).
3. Sensor arrangement according to Claim 1 or 2, characterized in that the receive unit has a mixer MIX.
4. Sensor arrangement according to one of the preceding claims, characterized in that the clock sources are arranged at different positions in the data bus.
5. Sensor arrangement according to Claim 4, characterized in that the clock sources are arranged at the ends of the data bus.
6. Sensor arrangement according to one of the preceding claims, characterized in that the transmit and receive units

are constructed as LTCC-HF modules.

7. Sensor arrangement according to one of the preceding claims, characterized in that

- 5 - a low-noise amplifier and/or
- a bandpass filter and/or
- a high-frequency filter and/or
- a sampling hold element

is/are connected to the other components in the receive unit.

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8. Method, in particular for operating the sensor arrangement according to one of Claims 1 to 7, in which a clock signal from a clock source (TS, RS) is supplied via a common data bus B to a transmit and/or receive unit (Tn, Rm) and the signal is emitted from a transmit unit to an object (O) and the reflected signal REF is mixed with a clock signal by a receive unit, in order to generate a measurement signal that can be evaluated therefrom, calibration of the clock signals being carried out on the signal bus based on determination of the zero point of the clock signals, comparing the phases of two clock signals via the data bus.

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9. Method according to Claim 8, in which a phase comparison is carried out based on a sample at one point of the data bus B to determine the zero point.

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10. Method according to one of Claims 8 or 9, in which the zero point is achieved by a phase comparison between two clock signals, which are supplied at two ends of the data bus B.

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11. Method according to one of the preceding claims, in which calibration of the clock signals is achieved in that a clock signal is transmitted over different lengths in the data bus

and a correction measure is provided based on a comparison with the original clock signal.

12. Method according to one of the preceding claims, in which
5 a phase comparison takes place by means of a FLIP-FLOP.

13. Method according to one of the preceding claims, in which
a transmit unit is activated by means of the control unit via
a multiplexer circuit.

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14. Method according to one of the preceding claims, in which
all receive units are activated so that the receive signals
reflected by an object are received in parallel.

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